CRS Build 7.0 Release Notes

These notes document the new features and bug fixes incorporated into CRS Build 7.0. Where applicable, Engineering Change Request (ECR) numbers have been provided to reference a formally documented problem which has either been partially (open) or completely (closed) resolved by this build. Those descriptions unaccompanied by ECR references (ECR N/A) indicate cosmetic-level changes or corrective actions taken to resolve an undocumented problem discovered while solving an existing problem.

1. **Main Processor (MP) Replacement** - Since CRS has been fielded, the MPs have accepted more processing burden while that of its counterpart, the Front End Processors (FEPs), have remained largely unchanged. The MPs have borne the lion's share of the processing requirements that have arisen out of numerous new capabilities that have been added to CRS since its inception just a few years ago.

   In an effort to keep pace with ever increasing demands placed upon CRS, it was realized the MPs required replacement with computers consisting of more powerful, advanced components. This replacement effort has improved MPs in the following three primary areas, in order of most effective contribution: (1) CPU/motherboard architecture, (2) memory and (3) operating system software.

   The upgraded MPs consist of 550 MHZ Intel Pentium III processors. This processor upgrade is the single greatest contribution to reclamation of dwindling processing resources in today's MP. Superscalar instruction pipelines, increased data/instruction cache sizes, elevated clock rates and 100 MHZ memory bus rates all factor in to making the rehosted CRS system application many times faster. An optional second PIII processor can be installed which, coupled with a Symmetric Multiprocessing (SMP) version of UnixWare 7, has the capability to yield even more throughput and provide even more processing power for CRS enhancements of the future.

   The MP Random Access Memory (RAM) has been increased from 32 MB to 128 MB. This increase in memory allotment allows many more CRS and non-CRS related applications to run in core memory without requiring the support of time-consuming virtual memory paging. Since applications do not have to be paged to disk, context switching performed by the operating system is much quicker, leading to a much more snappy, responsive system.

   The final major enhancement concerns the operating system. In order to minimize the rehosting effort, Santa Cruz Operation's (SCOs) UnixWare operating system Version 7.1.1 has been utilized, upgraded from Version 2.03. As the version numbers indicate, the operating system shift is a large one; however, this is mitigated by the fact that core Unix processes, services and programming APIs remain largely the same. SCO's UW7 has been considerably affected by the open source movement and reflects this through the adoption of the Common Desktop Environment (CDE) and inclusion of the popular open source desktop alternative, KDE (which is used for the root and crs logins), and numerous Skunkware tools and utilities that add much value to the system.

CRS migration to the new MPs and OS has been conducted in a straightforward, logical manner under the following guidelines:

a. All changes documented by SCO as required of C or script programs running under UW7 have been made to all CRS-related software, i.e., GUI, non-graphical CSCs, support utilities and installation and build software.

b. Changes have been made so as to impact CRS and its attendant human and computer interfaces in the least manner possible. This includes but has not been limited to changes to the CRS GUI and other such interfaces to the operators or the NOAA weather radio listener community at large. Where such changes have been required, as in an existing CRS screen, window, etc., the change was made intuitive so as to require little or no retraining of CRS operators and maintenance technicians and to preserve existing interfaces and protocols to legacy equipment.

c. Where possible, portions of CRS may have been redesigned and/or recoded to take advantage of a new or more efficient service or means as provided under UW7. This advantage was never performed at the expense of Item 2 above.

d. In the event that UnixWare 7 radically modified or removed a service or program indirectly or directly required or utilized by CRS, a reasonably operable facsimile was created within the constraints of project time and funds.

The following notable changes have been made to CRS software to accommodate MP upgrade replacement, as a result of development testing:

e. All makefiles have been modified to link with the new vice old (read, "buggy") threads library. This was accomplished by changing all "-lthread" link references to "-Kthread.".

f. All makefiles have been modified to drop the "x" library link since the "x" library does not exist in UnixWare 7. The "x" library provided miscellaneous functionality to C programs, most notably the millisecond discrete resolution sleep command, nap. The functionality previously provided by the "x" library has been moved to other standard libraries with which CRS programs are already linking. Note that "x" in this sense is not referring to X as in X windows.

g. GUI-related program makefiles have been modified to link with X Windows libraries that have been rearranged in UW7. This required the addition of the following library references: "-lXext", "-lSM", "-lICE", and "-lsocket."

h. Miscellaneous retouches were required on numerous GUI screens to realign or resize widgets to make them visually appealing. This was most often due to font differences between UW2 and UW7. To insulate CRS from further font problems, all GUI-related screens specify a particular font to use instead of relying on rendering the default font for text used within an application.

   Other graphical changes came about due to features inherited from upgrading Motif libraries and so were instituted automatically. These changes are: (a) radio buttons now appear as diamonds instead of circles (e.g., transmitter selection array in **Broadcast Cycle**); and (b) square checkboxes now appear without the black checkmark inside when depressed or selected (e.g., **SAME** and **Inhibit** transmitter toggles on **Weather Messages** screen). During MP replacement software development, it was noted that some text box widgets were truncating long text entries. This has been fixed by creating the widgets from a different text box class.

The root and crs desktop interfaces now utilize the K Desktop Environment (KDE) as their login GUI of choice. Besides incorporating many of the latest widgets and general advancements in desktop technology courtesy of LINUX, there are many useful tools and utilities to be found, including downloadable office suites. The Skunkware disk(s) included with each MP contain even more non-graphical and graphical utilities, including very powerful scripting languages such as Perl, Tcl and Python and full versions of compiled languages such as Java.

i. As indicated on UW2 man pages, the no newline option of the **echo** command (i.e., **echo -n <string>**) has been fully deprecated in UW7. All scripts using this option have been modified to suppress trailing newlines by adding a **\c** character to the end of the string to be echoed.

IMPORTANT NOTE: Since sites are apt to have local programmers who have authored scripts to automate a number of maintenance and direct CRS functions in UnixWare 2, any scripts that use **echo -n** must be altered or incorrect processing may result, sometimes in unexpected ways especially if scripts use the echo command for anything other than simple terminal output/prompting.

j. The Data Translation A/D driver was modified to use biodone calls vice iodone calls to signify that a requested block I/O operation had completed. A change was made in the application side of the analog-to-digital converter to allocate DMA memory on a page frame boundary (in **digSA.c** and **CP_DIadc.c**). Also, a special machine configuration process is required that reserves the A/D interrupt vector (currently 10) so it is not allocated to one or more additional devices. This process is handled by **CommPower** for initial MP upgrade processor shipments but must be known by local site personnel in the event that an A/D BIOS reconfiguration would need to take place.

k. The default graphical login administrator, **dtlogin**, was scrapped in favor of the **X Display Manager (xdm**) from UW2 (but using the one from UW7). The problem was that **dtlogin** would not allow **login_banner** to post the required security banner information on top of its login screen. Reverting to the proven **xdm** program for administering graphical logins has the added benefit of preserving a significant portion of the MP switch code. The login banner and miscellaneous support configuration files were also modified to support the reversion, mostly due to changes in path to **xdm-config** from UW2 to UW7.

l. UnixWare 7 did away with the **Message Monitor** from UnixWare 2 in favor of the **xconsole** program distributed with many of the open source Unices (i.e., LINUX, FreeBSD, etc.). This console window is based on the old Athena widget set, and as such, is light on features and is much less aesthetically appealing than Message Monitor. Also, it would appear that the ftp daemon program logs connects/disconnects as they occur, which was demonstrated to be undesirable especially with respect to Voice Concatenation. Thus, a successor worthy of **Message Monitor** was created from scratch for MP replacement and is called **Message Monitor Improved (MMI)**. This program starts automatically at system boot (is also present on the login screen) and, by default, monitors the system console log device, **/dev/osm**, for information to post. When information is written to the window, it pops up alerting the operator to the new report. For more information on **MMI**, consult **MMI**'s integrated help facility (see Item 15).

m. CRS's help system is now HTML-based. Clicking a **Help** button, a **?** icon or **Help->On Window** or **Help->Contents** brings up Netscape Communicator v4.61, the web browser bundled with UnixWare 7, with the relevant page and section brought in to view. Pictures of user interface elements mentioned in the CRS help text now appear inline. Hyperlinks allow jumps to relevant, cross-referenced information. Clicking **Home** on the Communicator toolbar brings up the CRS Help index page. Standard browser functions (e.g., **Find**) can be performed on the CRS help text.

n. CommPower has made it easier to nudge X servers back from the so-called "grey screen". This typically occurs when 0MP and 5MP are in a master/shadow role and the shadow processor was brought up (from a boot or reboot) after the master, though UnixWare 7 seems to handle this situation better than UnixWare 2 in that the shadow X server appears to reset properly. Nudging of X servers can now be done from the desktop popup menu for **admin**, **maint** and **oper** users. A dialog box appears requesting confirmation of intent, allowing operators to bail out if the selection was accidental

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o. The desktop popup menu has been revamped for **admin**, **maint** and **oper** to make the layouts more logical based on the privilege of the user logged in and command grouping of the functions in the popup menu. The **root** and **crs** desktop popups are the default arrangements provided by **KDE**.

p. Though not strictly a **CommPower** provision, UnixWare help, like CRS's, is HTML-based and viewed using Communicator. System administration has been made easier through the incorporation of a **Tcl-based** suite of programs, collectively called **scoadmin**, that ties the numerous system administration files scattered about the Unix filesystem under the umbrella of a single, consistent hierarchical presentation interface.

The following notable changes have been made to CRS software to accommodate MP upgrade replacement, as a result of FAT testing:

q. Stop of desktop and **xdm** processes needs to be separated by a small time interval since prematurely stopping the **xdm** processes results in abrupt termination of the /**crs/bin/crs_switch** script, thereby halting the switch process and leaving it in an unfinished state. Resolved this issue by delaying a small amount of time between killing desktop processes and their parent **xdm**s.

r. Some **scoadmin** functions fail because an **as1** domain is specified (required during UnixWare 7 installation to make loading easier). Resolved this issue by removing the domain specification in /**etc/resolv.conf**.

s. Timezone specification (e.g., **:US/Pacific**) that deviates from that used in UnixWare 2 (e.g., **PST7PDT**) caused **Site Configuration** screen to report timezone as **Unknown Daylight Time**. Fixed this problem by reverting the timezone selection to the UnixWare 2 designation for all CRS UnixWare initial configurations and ignoring the initial colon in the timezone spec.

t. UnixWare 7 dispensed with the user **.dtprops** file which held the default printer specification by user. This caused the **CRS_PrinterCtl()** library routine to fail to determine the correct CRS printer as **lx300**, which, in turn, prevented print jobs from being submitted to the **lx300** print queue. Resolved this problem by having the print library routine determine the CRS printer name via **/etc/default/lp** file instead. The CRS build installation program was also modified to specify the CRS printer as the system-wide default printer via **lpadmin**.

u. The new CRS build installation program failed to continue installation of build beyond the Q&A interview period. The problem was due to the tightened X server security measures implemented in UnixWare 7. Resolved this issue by temporarily removing host access restrictions to the X server via **xhost +** before **xterm** window launched by build installer to begin actual build removal/installation.

v. When **addusr_swmp** script is run, the new **switchmp** user is not created because the **/crs/bin/crs_switch** script that must be installed as **switchmp**'s login shell does not exist prior to build installation. Resolved this problem by having the **/crs/bin/crs_switch** script installed prior to running **addusr_swmp** to install the **switchmp** user.

w. The login banner does not come up for **telnet**s and messages input via AWIPS are not recognized. These problems were both caused by the CRS build installation program not replacing the UnixWare 7 system default **ftp** and **telnet** service lines in **/etc/inet/inetd.conf** with special CRS versions that execute wrappers to these service binaries. The installer was not making the correct replacements because UnixWare 7 changed the essential part of the stream replacement string from UnixWare 2. Resolved by having the build installer use the service name anchored at the front of the service entry instead of the invoked binary name near the last field of the entry. This change makes it less likely that simple changes by **SCO/Caldera** to these affected service lines in **/etc/inet/inetd.conf** will cause similar problems for CRS in the future.

x. The CRS emergency MP switch procedure did not complete successfully as the **System Status** display would show CRS forever attempting to come up with no active transmitters and Front End Processors, no shadow synchronization and no good ACP and VCC status. This was occurring because the **CP_VC** process was taking an inordinately long period of time to complete initialization thereby stalling the rest of the system startup and emergency switch completion. This was being caused by the attempted execution of many remote shell commands to the old Master MP that was offline. Resolved this issue by only allowing the remote shell commands to processors that have active network interfaces, i.e., that respond to **ping** commands.

y. It was discovered that clicking **Home** on the **Netscape Communicator**'s toolbar attempts to fetch **SCO**'s homepage on the Internet at **http://www.sco.com**. Resolved this annoyance by changing the default web home set up for all users when **Netscape** is run for the first time to the new online HTML help system's index (TOC or Table Of Contents) page at **file:/crs/data/CI/help/TOC.htm**. This default homepage change is made during CRS build install in the **/opt/netscape/sco/default-netscape-preferences.js** file permanently.

Closed ECR 667.

2. **Dictionary Files Always Reset** - Performing a **crs_site** from the command line or via the **XCRS_SITE** utility with the full compile option set causes dictionary-related database table information to be lost. Now, the command line switch **-d** and the equivalent **XCRS_SITE** option button **Do NOT CLEAR the Dictionary-related table data** prevent these tables from being reinitialized during a full site compile.

Closed ECR 626.

3. **Cannot Save GUI Changes** - Site interest in maintaining ASC files with the latest changes made via the CRS GUI has prompted the inclusion of the **gui_2ascii** binary utility. This utility is invoked from the **XCRS_SITE** program via the **Create ASCII file** button. Once clicked, the **Create An ASCII File** screen is presented. This screen lists all ASC files in the **/crs/data/SS** (standard ASC file) directory. The operator may elect to overstore one of these files with the snapshot to be made or may type the full path of a brand new ASC snapshot file to create. Clicking the **Create ASCII file** button on this screen causes a configuration snapshot to be made at that instant.

   Once the process is complete, all configuration information will be stored in compilable ASC format in the indicated file. Additionally, since the process is automated, a standard ASC file format is presented and enforced. This presentation includes verbose comments describing every field used within the file.

   As an added convenience, daily snapshots of the current configuration are taken at midnight UTC via a job in the **crs** crontab, **/crs/bin/daily_gui_2ascii.ksh**. The output filename is always **/crs/data/SS/daily.ASC**. These snapshots are also copied to the shadow MP. The current **daily.ASC** file is renamed **daily1.ASC** (the current **daily1.ASC** is renamed **daily2.ASC**, this rename process proceeding all the way to **daily9.ASC**) before the daily snapshot is taken. Thus, the latest nine (9) days of daily snapshots plus the last snapshot are retained. Operators are warned via a notification in the **Message Monitor** when a snapshot will be taken, and if it will be shadowed, in one (1) minute. CRS personnel should take this opportunity to close out any CRS configuration tasks they may be performing; however, normal CRS operations may obviously continue. When the snapshot is taken about 1 minute following this notification, the snapshot script will inform the operator if the snapshot was successful or not. Also, the stack of daily files on the local and shadow machines will not be promoted if the **gui_2ascii** process indicates that it was not successful in the snapshot process; this invaluable enhancement means that the stack of dailies will be preserved if snapshots fail over a period of days without this failure being detected and/or rectified by the appropriate support personnel. There are a few caveats to the shadowing mechanism which are listed as follows:

   - Manual **ASC** snapshots made from **gui_2_ascii** are **NOT** shadowed.

   - In an effort to conserve resources and prevent proliferation of corrupt snapshot files destroying the entire stack of dailies, **ONLY THE CURRENT DAILY.ASC SNAPSHOT FILE IS SHADOWED**. Thus, after Build 7.0 is initially installed, the daily stack on the **Master MP** should be synced with the **Shadow MP** once. This can be accomplished by performing the following two commands (at a shell prompt as user **crs**):

     cd /crs/data/SS
     rcp daily*.ASC 5MP:/crs/data/SS

     Replace the destination node, **5MP**, with the site's current **Shadow MP** nodename. Alternative to performing this initial syncing, sites can wait ten (10) days for the automatic snapshot and shadowing mechanism to naturally achieve full daily stack synchronization.

   A few guidelines regarding the use of the snapshot facility should be made. Both manual and automated snapshots may be performed with the CRS system in the up, down or intermediate state. The most reliable snapshots are taken with CRS in a steady state, i.e., no activity on CRS but AFOS/AWIPS message input or operator-created messaging taking place. The least reliable snapshots are taken with CRS in a changing state such as system startup, shutdown or while CRS maintenance is being performed through the GUI or via a utility program. It is possible that ASC files generated during the in-flux states of CRS are non-compilable or worse, cause the system to "misbehave" when operational. A good rule of thumb is to generate only "steady state" snapshots manually or automatically.

Lastly, it is the site administrator's responsibility to police the CRS system to ensure that daily snapshots are being made on the Master MP and that they contain data that looks reasonable based on his/her knowledge of their site's configuration. Offline test compiles should be made of daily snapshots periodically to check for obvious signs of database corruption. Manual snapshots should be taken after major system changes are made through the GUI.

Various parts of the **gui_2ascii** utility were corrected as it received rather extensive field testing by NWS Headquarters and the MP Replacement Field Sites. These fixes are as follows:

- Linked lead-in components by message type now are correctly dumped by lead-in name rather than just a single quote mark (").
- Long component (e.g., Group Name) names are no longer corrupted when the name length approaches allowed limits.
- Non-configured transmitters now do not generate entries in various sections of the **ASC** file that would cause problems on compilation. To this end, **crs_site** changes were also processed to prevent non-configured transmitter references entered inadvertently by site personnel into the **ASC** file from jeopardizing the compile.
- The **crs_site** program was also modified to provide heightened detection of illegal **ASC** file constructs related to empty component records designated by empty quotes ("").
- The **gui_2ascii** program now exits with a non-zero status code when it fails to successfully generate an **ASC** file. This improvement has special ramifications with regard to **gui_2ascii** executions out of the **crs** crontab via **/crs/bin/daily_gui_2ascii.ksh** to generate the new daily **ASC** file. If such a status is returned from **gui_2ascii**, the **daily_gui_2ascii.ksh** script will prevent the daily stack of **ASC** files in the **/crs/data/SS** directory from being promoted, which, in turn, preserves the last "good" **ASC** files made from **gui_2ascii**.

Closed ECR 627, 703 and 704.

4. **Transmitter Help Tip** - If the **Help Tips** option is set in the **Help** menu of the CRS Main Menu, then a transmitter number help tip will appear when the mouse cursor is positioned over a transmitter mnemonic that is part of a transmitter array of radio or option buttons, e.g., **Transmitters/Playbacks** selects in **Broadcast Cycle** and **SAME** and **Inhibit** toggles in **Weather Messages**, respectively. The text of the tip will consist of the assigned number of that transmitter as designated in the local CRS site configuration.

   IMPORTANT NOTE: The **Help Tips** option only takes effect for windows launched after the option change and will not affect windows/applications already up.

   ECR N/A.

5. **Wrong Default Priority on Message 253** - When the Concatenated Voice capability was integrated into CRS for prototype deployment, existing **Error Message 253**, **Message for Conversion**, was used to notify the operator of the reception of a concatenated message from serial or network input. Commensurate with such use for concatenated voice, the notification priority of **Error Message 253** was changed from **High** to **Medium**. However, incoming SSO messages alert operators via this same error message. In order to preserve the **High** priority originally given to SSO messages, new **Error Message 255, Message for Concatenation** has been created to handle voice concatenation messages at **Medium** priority while **Error Message 253** has been restored to service SSO message reception only at **High** priority.

   Closed ECR 672.

6. **Key West Added to CRS Site ID Database** - The site ID for Key West, Florida ("EYW") has been added to CRS's database of sites and their corresponding IP address assignments. CRS will now correctly recognize Key West's assigned IP address base and translate this to the unique site identifier "EYW". Also the build installation has been modified to make site IP address checking/validation more robust so IP address error checks appearing at build installation as reported by various sites should no longer happen. Sites are encouraged to report such errors, no matter how trivial, to National Weather Service Headquarters.

   Closed ECR 689.

7. **X Server Connection Problems** - During debug testing of a few problems discovered as a result of the MP Replacement Factory Acceptance Tests, an additional problem inherent in UnixWare 7's configuration has been fixed. Overall system security profiles have been strengthened in UnixWare 7 compared to UnixWare 2. One of these areas is server access. If a user logs in as, say, **admin**, and then wishes to switch user (via **su**) to **crs**, the strong authentication mechanism prevents the user as **crs** from opening up any windows/window-based programs on the display since it is owned by a different user (**admin**). This issue was resolved by disabling X server authentication in the **/usr/X/lib/X11/xdm/xdm-config** file.

   ECR N/A.

8. **Shadow Files During Database Backup** - Sites have long had the capability to backup their complete system configuration and database for subsequent retrieval in the face of computer catastrophe. A loophole, however, has been closed with this build in that the backup set was not shadowed to the Slave MP. Should catastrophe strike the Master MP, then backups written only to the Master MP are worthless should a database recompile need to be performed on the Slave MP prior to making a backup with the shadowed database there. Now, the entire backup set in **/crs/data/DB_BKUP/<name>**, where **<name>** is the name given to the backup set, is duplicated on the Slave MP.

   Also, since sites will retire their backup tape drives as more and more of them advance to AWIPS enabling network backups, the CRS GUI and **/crs/bin/db_bkup** script have been modified to remove backup and restore to magnetic tape support.

   An oversight in the original implementation of this capability causes CRS to not initialize with the proper CRS Master. This can occur when a database backup set has been made on one Master MP (e.g., 0MP) and the set has been correctly shadowed to the other MP (i.e., 5MP). If an emergency switch and subsequent database restore is performed out of necessity, then CRS will attempt to restart on 5MP as a Shadow processor. In this situation, it will appear that CRS remains in the initialization state on 5MP forever. This occurs because the database restore explicitly set 5MP back as the CRS Shadow MP after the switch process had set it up as the CRS Master MP.

   The solution implemented in Build 7.0 was to switch the MP Master/Shadow roles for 0MP and 5MP in backup sets shadowed in the current configuration.

   Closed ECR 688 and 702.

9. **Alert Monitor Disappearance** - A problem seen from time-to-time on CRS (including the current CRS on UnixWare 2) occurred during the MP Replacement FAT. The problem was written up as ECR 681, documenting the disappearance of the **Alert Monitor** window on an MP when one or more items were selected and subsequently **Acknowledge**d from it. Investigation revealed improper custom list management code that would effectively attempt to operate on non-existent entries, leading to a situation that would cause the **ci_alert** binary to dump core. The problem was fixed for 6.8 but has been put on Monitor status to check for recurrence.

   Closed ECR 681.

10. **Can't Configure a LAN Printer** - A problem report was written back on the UnixWare 2 platform about not being able to configure a LAN printer from that version of the operating system. Configuration of local and remote printers is made much easier in UnixWare 7 thanks to the centralization of system administration in the **scoadmin** tool.

    Perform the following series of steps to configure a LAN printer under UnixWare 7 (MP Upgrade system) with CRS up or down:

    1. Login to 0MP as root.
    2. Click on **scoadmin** icon (Swiss Army knife) in bottom toolbar.
    3. Double-click on **Printer Setup Manager** in main **scoadmin** window.
    4. In **Printer Setup on 0MP** window, click **Printer->Add TCP/IP Printer. . .** from menu.
    5. In **Add Printer Connected via TCP/IP** window:
        1. Type a name for the printer in **Printer Name** text box.
        2. Select the appropriate model of printer in **Make/Model** list.
        3. Select **Printer Connection Type** as **On Network**.
        4. Specify the IP address of remote printer in **Remote Printer** text box. If printer IP is specified in **/etc/hosts**, click on **Select. . .** button to select by name.
        5. Click **OK** button.
    6. The printer should be added to **Printer Setup on 0MP** window.
    7. Repeat Steps a) through f) for 5MP.
    8. Repeat Steps a) through g) to add additional network printers.

    You may use the newly added printer(s) as you would any other hardcopy device. Use the "lp" command with the "-d" switch to send a print job to the specific named printer. Printing from GUI applications (graphical) often requires additional setup within the application itself to print to a PostScript compatible printer (make sure any network printers you add are PostScript compatible). In this manner, you may print, for example, CRS HTML help from Netscape Communicator in all its graphic splendor.

    Closed ECR 635

11. **Site Configuration Parameters Are Not Editable** - The Build 6.4 change to the **Site Configuration** window that added a tab notebook widget to this screen caused editable fields to become non-editable. The problem was caused by improper widget set specifications in the **ci_site** program that prevented the widgets from accepting input (text). This problem has been fixed in Build 7.0.

    Closed ECR 671.

12. **EO Initialize Tone Too Loud** - While the EO broadcast live session is going through the various initialization steps before you go "ON AIR", audible beeps are generated. These initializing beeps are much louder in this build.

    This is not a build problem but rather a result of moving from one hardware platform to another. The PC speaker volume is simply louder on the MP replacement box. It should be noted that the PC speaker volume cannot be controlled through software.

    ECR 686

13. **Simultaneous DOS Commands and Voice Recordings Crash CRS** - Doing a 'doscp' or 'dosdir' command from the Unixware command line, while simultaneously recording a 'Voice Message' causes the Master Processor to crash. This problem has been fixed with the introduction of more efficient DOS utilities (the **mtools** package) in Unixware 7.1 and a much more powerful hardware platform.

    Closed ECR 630.

14. **Unixware DOS Tools Have Been Replaced with Unixware MTOOLS** - Sites should be aware that the new version of Unixware replaces the old and outdated 'dos' tools, ie. doscp, dosdir, etc, with 'mtools'. Sites that have created special scripts for dictionary and/or ASCII backup and restore, for example, shall modify these scripts accordingly. Information concerning the use of 'mtools' can be found using the Unixware 'man' pages.

    ECR N/A

15. **Message Monitor Help System** - The **Message Monitor Improved** (**MMI**) program that displays critical system information in a scrollable window has been further improved over the initial version with the addition of a native HTML help system. Invoke this help system from the **MMI** popup menu.

    The first status panel at the bottom of **MMI**'s main window designates the full path to the default browser **MMI** uses to displays its HTML help pages. This default browser is Netscape Communicator located at **/usr/X/bin/netscape** (soft link). This default browser association is made by **MMI** at each startup, overriding the browser selected with the **Choose Help Browser** popup menu item selection. Select **Help** from **MMI**'s popup menu to launch the help system with the Netscape browser. **MMI** help is available when **MMI** is running on either **0MP** or **5MP**.

    Note that **MMI** help is only available after a site has upgraded to CRS Build 7.0 or later. Once this upgrade has been performed, **MMI** help will always be available even if the currently-installed CRS build is removed.

    Closed ECR 680.

16. **SSO From AWIPS Needs Filenames With Fewer Than 12 Characters** - A quirk discovered with CRS's AWIPS interface concerns the length of submitted filenames (with **.AW** extension). Though the core of CRS AWIPS message processing does not explicitly limit the length of these filenames, the **SSO** application would not retrieve and/or correctly process weather message files with filenames in excess of 11 characters (excluding the filename extension).

    The **SSO** application has been corrected in Build 7.0 to allow AWIPS filenames up to 30 characters in length (excluding the filename extension) to be correctly processed.

    Closed ECR 670.

17. **EO/SSO Collision** - A situation occurred whereby an **EO** session was interrupted by a message bound for **SSO**. This interruption caused the **SSO** window to display atop the **EO** window and caused the **EO** process to hang. CRS has been modified to prevent operators from being able to disposition **SSO** messages from the **SSO** window in the event an **EO** process/window exists. Once the **EO** window has been closed, operators will be allowed once again to manipulate **SSO** messages.

    Closed ECR 634.

18. **Artificial LAC Range Restriction** - An LAC range specification in the AFOS header specifying a large range gap (usually in excess of 130, e.g., **CAC100>CAC240**) causes CRS to reject the message in earlier builds. This occurs because the CRS logic responsible for decomposing the range into individual LACs (areas and zones) does so without regard to those LACs actually defined in the system. This kind of error can easily overwhelm the 130 maximum LAC (areas including those decomposed by zone) limit imposed by CRS on a per message basis.

    The fix in Build 7.0 to this problem was to have CRS validate the LAC prior to associating it with the message. If the LAC is not defined, CRS ignores it. Now it is possible to specify a range with undefined LAC code text at either or both endpoints of the range; the proper inclusive LACs will be associated with the message when it is created.

    In the course of fixing this problem, three other problems were discovered and subsequently fixed. The first problem caused sixteen zone entries to be added to the **Info** screen's scrolled listbox in which areas and zones of the selected message are listed in the **Broadcast Cycle** screen. The second problem caused improper zone data to be carried over to non-zone records of the same message in the **MessageAreaTable**. The last problem caused a resource name vice a human-readable, descriptive message to appear in the **Listening Zones** status line when a duplicate listening area was added to the current zone or a zone with the same name as an existing zone was created.

    Closed ECR 632.

19. **Default Error Messages For Operator Notification** - Error Messages 254 **(Existence of Weather Message Correction Files at CRS Startup**) and 424 (**Message Transmit Confirmation**) have been changed in Build 7.0 to elicit operator notifications at medium priority when these events occur. These settings become part of those permanently established by CRS application load. Prior to Build 7.0 these events would not generate operator notifications by default.

    Closed ECR 631.

20. **X Window Display-Related Anomalies** - As for Item 15 of these release notes, the problem described by ECRs 577 and 607 has been eliminated by the hardware and software changes made by the MP Replacement Program. To date, utilizing the new platform has demonstrated no display problems like crashing of the X Window server or corruption of widgets within large windows when moved.

    Closed ECRs 577 and 607.

21. **Incorrect Depiction of Status Window States** - The **Status** window display has been known to display incorrect processor/subsystem states (icons) from time-to-time. To correct this problem, the **Status** window now employs a one minute synchronous refresh routine during which time all icons are changed per the state information contained within the system configuration and status shared memories. The shared memories are detached and re-attached to avoid the "stale handle" problem. In addition to the synchronous, automatic refresher, a popup menu refresh entry (depress the right mouse button while the mouse cursor is over the **Status** window) can be selected that invokes the refresh routine at any time. This allows the operator to force **Status** window refresh without waiting for the auto-refresher or without a logout/login cycle.

    Closed ECR 604.

22. **Weather Messages System Report Is Not Functioning** - Attempts at obtaining a **Weather Messages** report from **System Reports** was limited to those messages created by operators, as opposed to those received from AFOS/AWIPS. The reason for this is that messages can only be reported that have entries in the **MessageNameTable** database table, and only operator-created messages have legitimate message names.

    CRS message reporting logic has been changed in Build 7.0 to acquire the list of valid messages on which **Weather Messages** reports can be made not just from the **MessageNameTable** so that AFOS/AWIPS messages with their automatically-generated message names are included.

    Closed ECR 446.

23. **Add Transmitter** - The **Add Transmitter** program was updated to process long lines within site **ASC** files.

    ECR N/A.

24. **Wrong Default Printer Spec** - Under the initial CRS MP Replacement Build, the CRS **Print Monitor** utility was not defaulting to the LX-300 dot matrix printer. This happened because the incorrect file was changed to indicate the default printer for all UnixWare 7 users. The correct file is **/etc/lp/default** vice **/etc/default/lp**.

    Previously closed ECR 667.

25. **Inappropriate Permissions on /crs/bin/ftp.ksh** - The **ftp.ksh** script assists in sending files via **ftp** to a designated node and directory on that node. Since password authentication is required, the passwords embedded in the script are viewable as plaintext. To heighten the security for these nodes (i.e., the **Voice Concatenation Computer**), the permission setting for the **/crs/bin/ftp.ksh** file on **0MP** and **5MP** has been changed from 711_8 to 710_8 to prevent execution of **ftp.ksh** outside of the **crs** group.

    ECR N/A.